

# Display Unit Display Controller

## Operating Instructions

Before operating the unit, please read this manual and the supplied Before Using This Unit document thoroughly and retain it for future reference.

ZRD-1/ZRD-2  
ZRCT-100/ZRCT-200

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# Please Read This First

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## Manual Structure

This product includes the following manuals to be used according to the situation.

### Before Using This Unit (ZRD-1/ZRD-2, ZRCT-100/ZRCT-200)

This includes important safety precautions, specifications, etc.

### Installation Manual

This includes information on installation, initial setup, equipment adjustment procedures, etc. Refer to this manual when changing equipment settings or performing readjustments after installation as well.

### Operating Instructions (this document)

This includes information on video input selection, picture quality adjustment, parts identification, etc. Refer to this manual when performing general operations.

### Service Manual

This is intended for use by service personnel and includes information on diagnosing malfunctions and instructions on repair.

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## Licenses

Refer to the Software License Agreement.

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## Condensation

If the unit is suddenly taken from a cold to a warm location, or if ambient temperature suddenly rises, moisture may form on the outer surface of the unit and/or inside of the unit. This is known as condensation. If condensation occurs, turn off the unit and wait until the condensation clears before operating the unit. Operating the unit while condensation is present may damage the unit.

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## Security

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Depending on the operating environment, unauthorized third parties on the network may be able to access the unit. When connecting the unit to the network, be sure to confirm that the network is protected securely.

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## Burn-in

Permanent burn-in may occur if a still image is displayed for a prolonged period of time. Playing a video with moving images may reduce the severity of burn-in once it occurs, but it will not remove the burn-in completely.

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## Defective pixels

The panel fitted to this unit is manufactured with high precision technology, giving a functioning pixel ratio of at least 99.99%. Thus a very small proportion of pixels may be “stuck,” either always off (black), always on (red, green, or blue), or flashing. In addition, such “stuck” pixels may appear spontaneously over a long period of use due to the physical characteristics of the organic light-emitting diodes.

Such occurrences do not indicate a malfunction.

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## General Precautions

- Avoid getting the product wet. In the event of accidental contact with liquids, do not turn on the power, and contact a service representative.
- If an error or malfunction occurs or if foreign matter enters the interior of the product, turn off the power and discontinue use, and contact a service representative.
- Do not subject the front panel of the display units to damage or shocks.
- Request cleaning and maintenance periodically from a service representative.

# Overview

You can connect the display units based on the installation location and intended use, convert the video content signals that are input to the display controller based on the array size, and output the signals onto the display units. 4K2K video can be controlled via a single display controller. Control of the display units is performed from a computer on which Display Control Software is installed.

Daisy-chain connections can be configured between display units using a power cord (supplied with the ZRD-2 only) and a network cable. (For details on the number of display units that can be connected, refer to the Installation Manual.)

## Caution

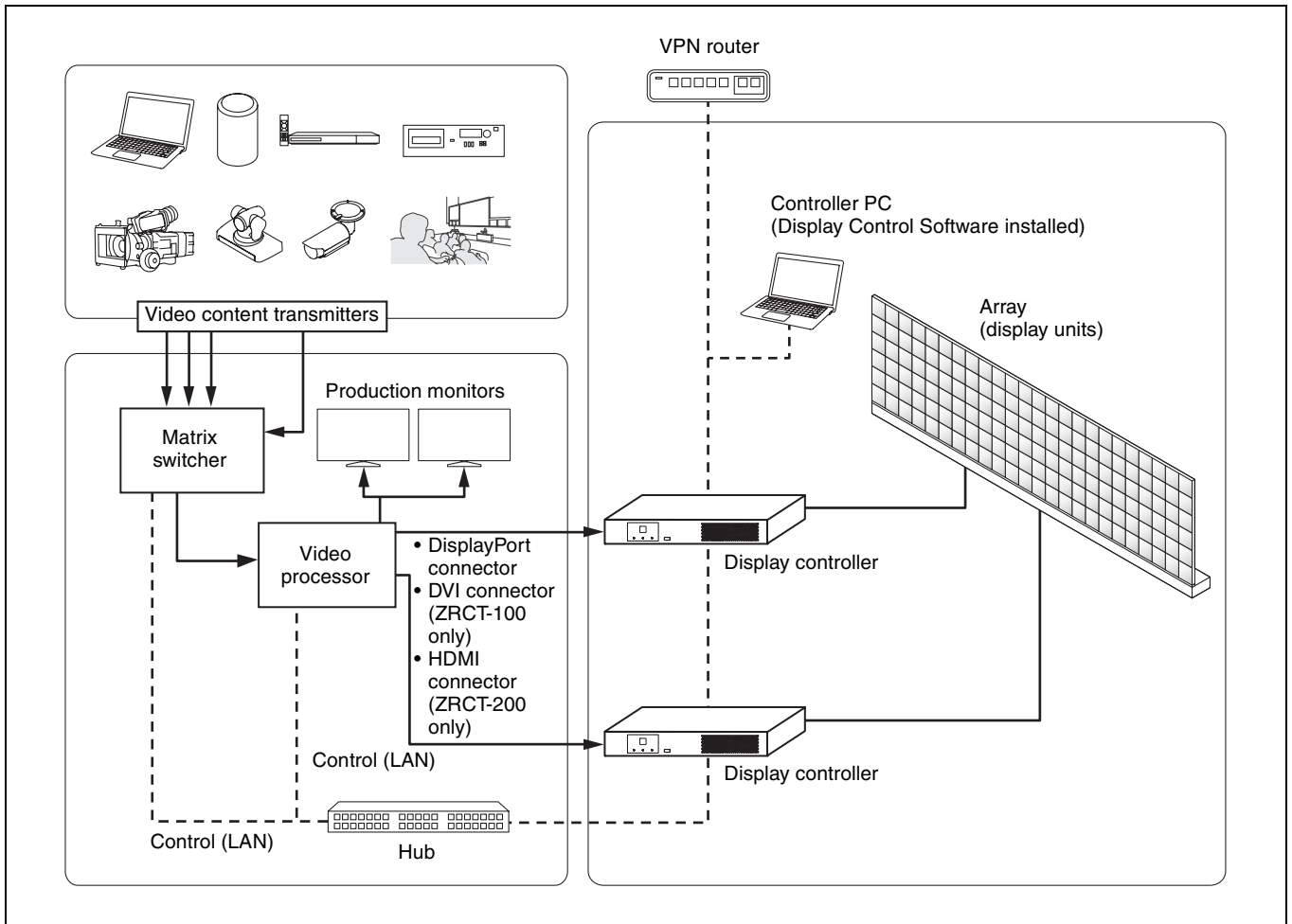
Use the Category 6a cable supplied with the ZRD-2 for the network cable or a commercially available Category 7 cable. Do not use a commercially available Category 6a cable.

## Notes

- Display of 4K2K video requires 72 display units.
- Each display controller is equipped with 12 ports, and each port is capable of controlling up to 6 display units.

## System Configuration Diagram

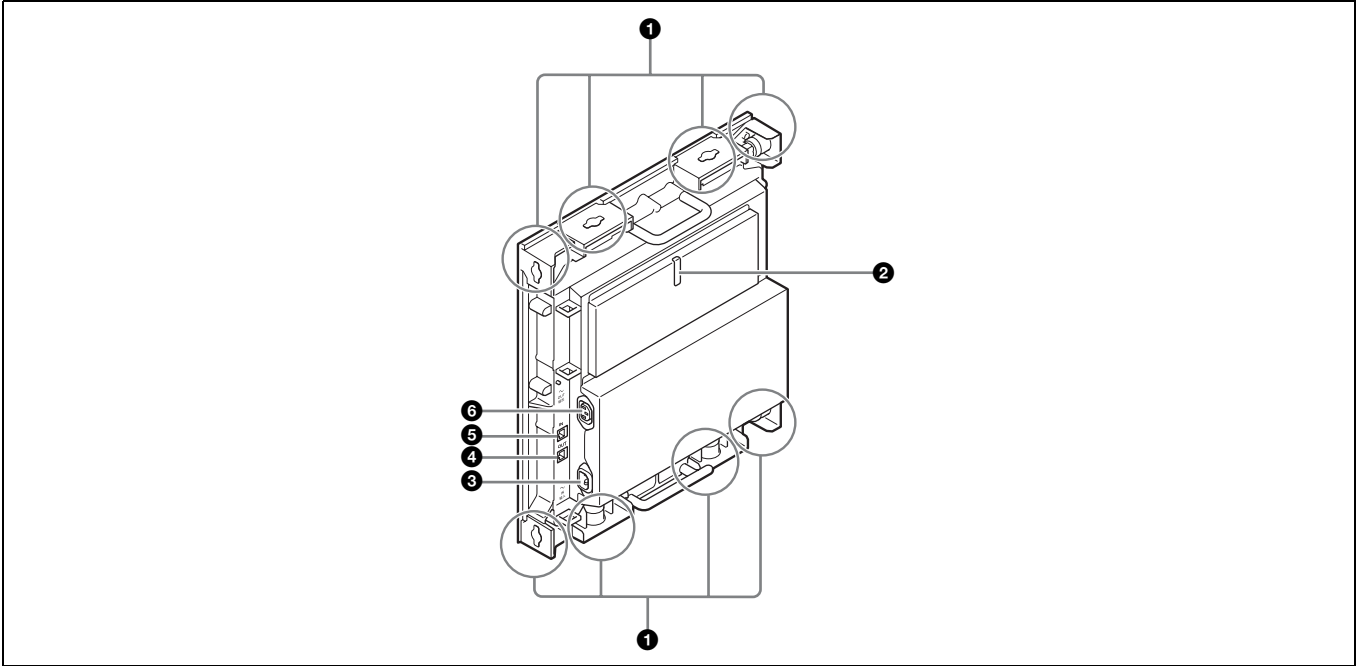
### Configuration example of the entire system



# Parts Identification

## ZRD-1/ZRD-2 Display Unit

### Left / rear



#### Caution

Do not connect the OUT and IN connectors to a hub. The input/output signals for these connectors are unique to the product and are not Ethernet signals. In particular, be aware that connecting these connectors to a PoE injector hub may result in damage to the product.

#### 1 Unit joints

Connect to other display units.  
Two unit joints are located on each of the top, bottom, left, and right sides of the display unit.

#### 2 Status indicator

Indicates the status of the display unit.

Indicator	Status
Off	The display unit is turned off.
Lit yellow	The display unit is starting up.
Blinking yellow	A warning has occurred. <i>For details, see "Troubleshooting" (page 17).</i>
Lit red	The display unit is in standby mode.
Blinking red	An error has occurred. <i>For details, see "Troubleshooting" (page 17).</i>
Lit green	The display unit is operating normally.

#### 3 ~ IN (AC power input) connector

Use a power cord (supplied with the ZRD-2 only) to connect this connector to the ~ OUT (AC power output) connector on the preceding display unit in the daisy-chain connection.

For the first display unit in the daisy-chain connection, use a power cord (not supplied) to connect this connector to the circuit breaker.

#### 4 OUT (unit output) connector (RJ-45)

Use a Category 6a cable (supplied with the ZRD-2 only) or Category 7 cable (not supplied) to connect this connector to the IN (unit input) connector on the succeeding display unit in the daisy-chain connection. This connector is not used for the last display unit in the daisy-chain connection.

#### 5 IN (unit input) connector (RJ-45)

Use a Category 6a cable (supplied with the ZRD-2 only) or Category 7 cable (not supplied) to connect this connector to the OUT (unit output) connector on the preceding display unit in the daisy-chain connection.

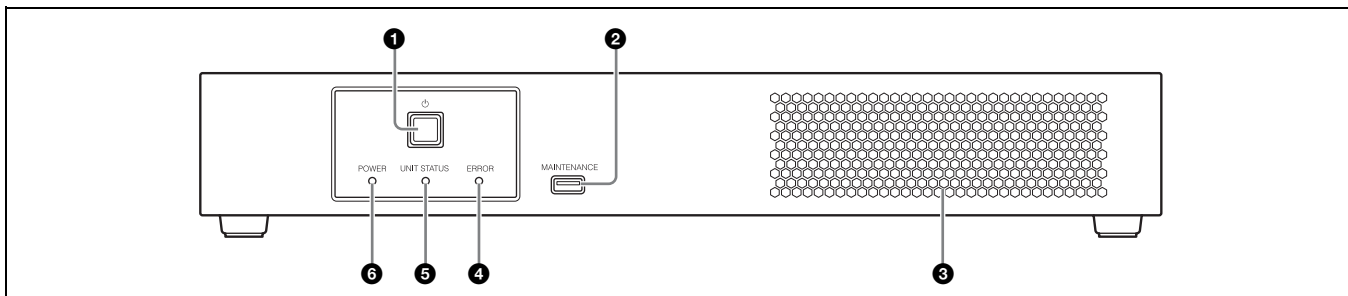
For the first display unit in the daisy-chain connection, use a Category 7 cable (not supplied) to connect this connector to the UNIT OUTPUT connector on the display controller.

- ⑥ **~ OUT (AC power output) connector**  
Use a power cord (supplied with the ZRD-2 only) to connect this connector to the ~ IN (AC power input) connector on the succeeding display unit in the daisy-chain connection.

This connector is not used for the last display unit in the daisy-chain connection.

## ZRCT-100/ZRCT-200 Display Controller

### Front



- ① **(power) switch**  
Turns the display controller on/off.  
  
*For details, see “Turning the Power On/Off” (page 8).*
- ② **MAINTENANCE connector**  
This connector is used for maintenance servicing.
- ③ **Intake vent**  
Do not block the intake vent, as doing so will result in interior heat buildup which may result in fire or malfunction.
- ④ **ERROR indicator**  
Blinks when warnings occur, and lights when errors occur.

*For details, see “Troubleshooting” (page 17) and “Error Codes” (page 19).*

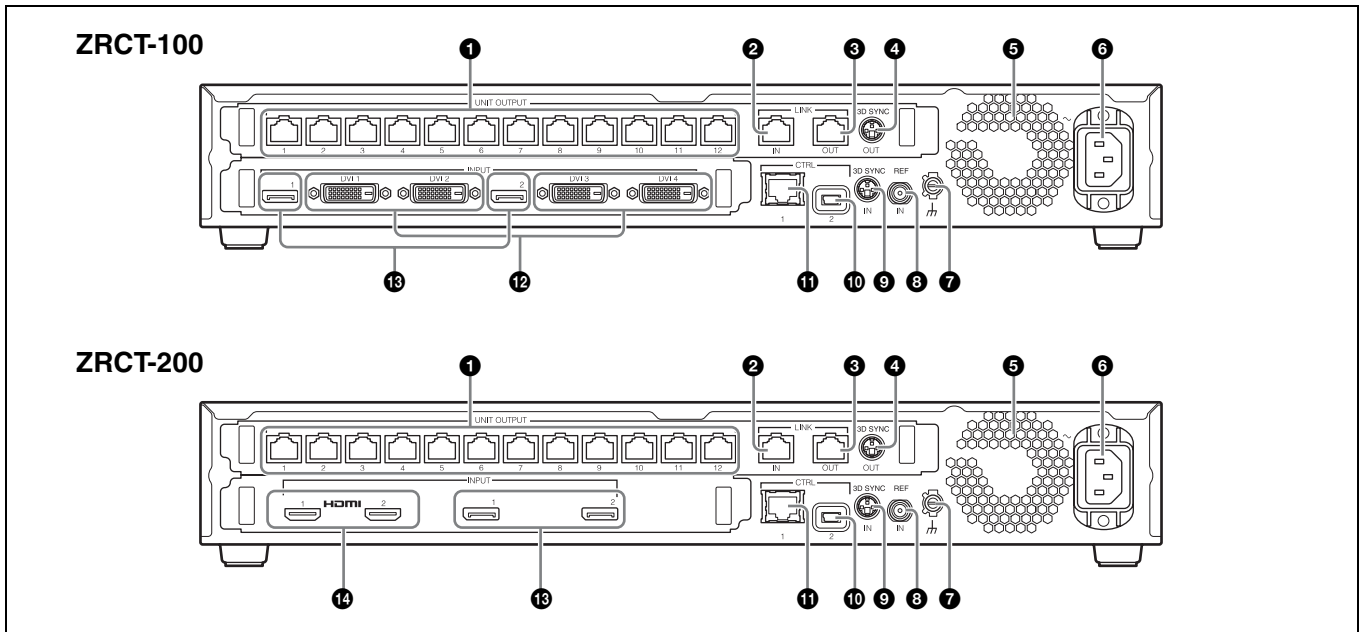
- ⑤ **UNIT STATUS indicator**  
Indicates the power status of the display units.  
The indicator lights green when all the display units that are connected to the display controller according to the display unit layout settings are turned on.  
If any of the display units are turned off according to the display unit layout settings, the indicator turns off.

*For details on the display unit layout settings, consult your system administrator.*

- ⑥ **POWER indicator**  
Indicates the power status of the display controller.

Indicator	Status
Off	The display controller is turned off.
Lit orange	The display controller is in standby mode.
Lit green	The display controller is turned on (normal operating status).
Blinking green	The display controller is starting up or shutting down.
Lit red	The forced standby mode has been entered.  <i>For details, see “Entering the forced standby mode” (page 18) in the “Troubleshooting.”</i>

## Rear



### Caution

Do not connect the UNIT OUTPUT, LINK IN, and LINK OUT connectors to a hub. The input/output signals for these connectors are unique to the product and are not Ethernet signals. In particular, be aware that connecting these connectors to a PoE injector hub may result in damage to the product.

- 1 UNIT OUTPUT connectors 1 to 12 (RJ-45)**  
Use a Category 7 cable (not supplied) to connect this connector to the IN (unit input) connector on the display unit you want to control (i.e., first display unit in the daisy-chain connection).
- 2 LINK IN connector (RJ-45)**  
Use this when using multiple display controllers to control the display units.  
Use a Category 7 cable (not supplied) to connect this connector to the LINK OUT connector on the display controller you want to link.
- 3 LINK OUT connector (RJ-45)**  
Use this when using multiple display controllers to control the display units.  
Use a Category 7 cable (not supplied) to connect this connector to the LINK IN connector on the display controller you want to link.
- 4 3D SYNC OUT connector (mini-DIN, 3-pin)**  
Outputs 3D sync signals.
- 5 Exhaust vent/fan**  
Do not block the exhaust vent, as doing so will result in interior heat buildup which may result in fire or malfunction.

- 6 ~ IN (AC power input) connector**

Use a power cord (not supplied) to connect this connector to the circuit breaker.

- 7 ⏏ (earth) terminal**

Connect this to the earth conductor of the system.

### Caution

Failure to connect the system to the protective earth may result in electric shock. Be sure to connect to the earth conductor, even during operation inspections.

- 8 REF IN (external reference signal input) connector (BNC)**

Inputs external reference signals used for synchronization.

*For details, refer to the Installation Manual.*

- 9 3D SYNC IN connector (mini-DIN, 3-pin)**

Inputs 3D sync signals.

- 10 CTRL (control) connector 2 (Mini-USB, Type B)**

Use this to connect to the controller PC via a USB (SERIAL) connection.  
Use a USB cable (not supplied) to connect this to a USB port on the controller PC.

- 11 CTRL (control) connector 1 (RJ-45)**

Use this to connect to the controller PC via an Ethernet (LAN) connection. Use an Ethernet cable (Category 5, not supplied) to connect this to a LAN port on the controller PC.

- 12 **DVI (video input) connectors 1 to 4 (ZRCT-100 only)**

Connect these to the video processor.

- 13 **DisplayPort (video input) connectors 1 and 2**

Connect these to the video processor.

- 14 **HDMI (video input) connectors 1 and 2 (ZRCT-200 only)**

Connect these to the video processor.

### Caution

When inputting 4K-equivalent HDMI signals, use a cable that is marked with the Premium High Speed HDMI logo and is within 3 m in length.

We recommend using Premium High Speed HDMI cables that are within 3 m in length even when you are not inputting 4K-equivalent HDMI signals.

# Turning the Power On/Off

## Turning the Power On

You can turn on the system's power using one of three methods. Consult your system administrator regarding which method to use.

- Turning the power on via the display controller
- Turning the power on via Display Control Software
- Turning the power on by connecting the power cord to the display controller

### Caution

Always connect the display controller's power cord to the circuit breaker.

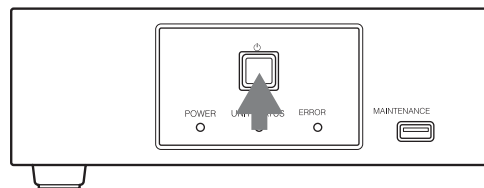
If pictures are not displayed within 5 minutes of turning on the system's power, try turning the system's power off and then on again.

### Note

If a startup delay is configured in the [Function] - [System Settings] - [Display Unit Power On Delay] setting of Display Control Software, the display units will turn on according to the configured delay.

## Turning the power on via the display controller

- 1 Press and hold the power switch on the display controller for about 2 seconds.  
Turn on all the display controllers by pressing each of their power switches.



When a display controller turns on, its POWER indicator lights green.

When a display unit turns on, its status indicator lights green.

### To enter standby mode

Press the power switch on a display controller twice to set the display controller and display units to standby mode.

To return to the power ON state, press and hold the power switch again.



## Note

If you press the power switch only once in the power ON state, the POWER indicator will blink red for 2 seconds, but the standby mode will not be entered. You can enter standby mode by pressing the power switch again while the indicator is still blinking red.

- 2 Turn on the video source equipment.

## Turning the power on via Display Control Software

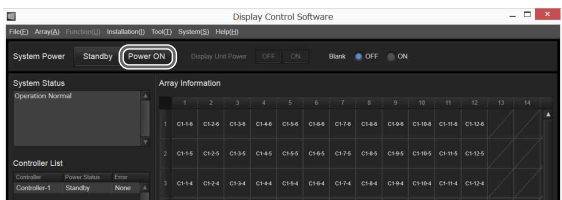
The initial settings must be configured beforehand to turn the power on via Display Control Software. For details, consult your system administrator.

- 1 Start the controller PC, and click [All Programs] - [Display Control Software] - [Display Control Software] in the start menu to start Display Control Software.
- 2 Click [Power ON] in the main screen.

### Before version 1.22.0



### Version 1.22.0 or later



Under default settings, all display controllers and display units will turn on. When a display controller turns on, its POWER indicator lights green. When a display unit turns on, its status indicator lights green.

### When you click [Standby]

The power status of all connected display controllers and display units will enter standby mode, and the main screen will remain displayed. Click [Power ON] to turn the power on again.

- 3 Turn on the video source equipment.

## Turning the power on by connecting the power cord to the display controller

When [Function] - [System Settings] - [Direct Array Power On] is set to [ON] in Display Control Software beforehand, simply connecting the display controller's power cord will turn on the display controller and display units.

- 1 Connect the power cord to the ~ IN connector on the display controller. When a display controller turns on, its POWER indicator will switch from blinking red/orange to remaining lit green. When a display unit turns on, its status indicator lights green.

- 2 Turn on the video source equipment.

## Turning the Power Off

You can turn off the system's power using one of two methods.

- Turning the power off via the display controller
- Turning the power off via Display Control Software

## Turning the power off via the display controller

- 1 Turn off the video source equipment.
- 2 Press the power switch on the display controller twice. The display controller and display units will enter standby mode.
- 3 If necessary, disconnect the AC power supply.

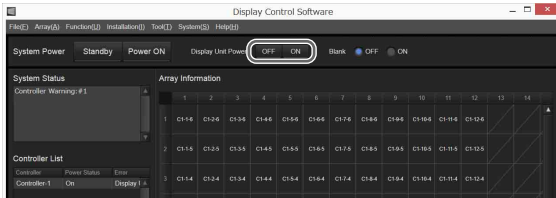
## Turning the power off via Display Control Software

- 1 Turn off the video source equipment.
- 2 Click [Standby] in the main screen of Display Control Software. The display controller and display units will enter standby mode.
- 3 If necessary, disconnect the AC power supply.

## Setting only the power of the display unit to standby mode (version 1.22.0 or later)

You can set only the power of the display unit to standby mode without disconnecting the video signal transmitter and the display controller. It is only valid when the system is turned on.

Click [OFF] in [Display Unit Power] on the main screen of Display Control Software. If [ON] is selected, the display unit will turn on.



## Selecting the Video Input

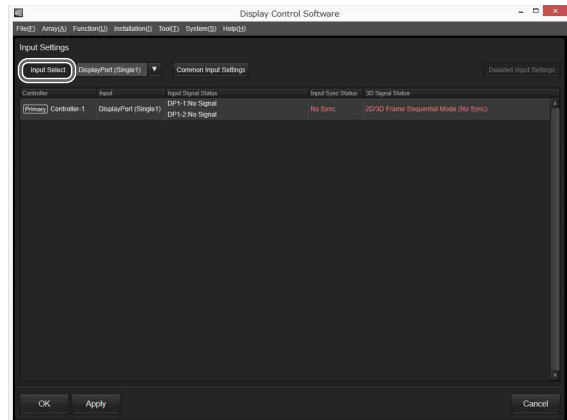
Select the video signals that will be input.

The settings configured on the primary controller will be applied to all the other display controllers, including the subordinate controllers (hereafter referred to as “sub controllers”). Sub controllers cannot be configured individually.

### Caution

If the a primary controller is not configured via Display Control Software or the primary controller is not already turned on at the time the [Input Setting] screen is displayed, video input selection cannot be performed. In addition, the video input settings will not be applied to the sub controllers if they are not turned on.

- 1 Select [Input Settings] in the [Array] menu on the main screen of Display Control Software.
- 2 Select the input channel in [Input Select], and click [OK] or [Apply].  
The video input changes.



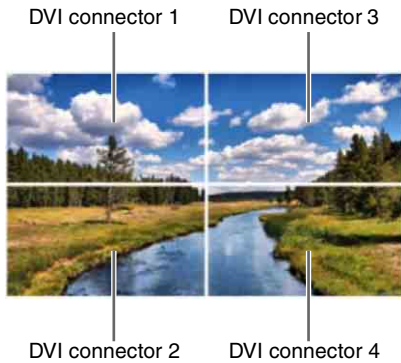
**[HDMI1] (ZRCT-200 only):** Use HDMI connector 1 to display pictures.

**[HDMI2] (ZRCT-200 only):** Use HDMI connector 2 to display pictures.

**[DVI] (ZRCT-100 only):** Use the DVI connectors to display pictures as large as 4K 50p/60p. (All four DVI connectors are used.)

Example of picture positions and DVI connectors:

- DVI connector 1: Top left
- DVI connector 2: Bottom left
- DVI connector 3: Top right
- DVI connector 4: Bottom right



**Note**

A picture can be displayed using only one DVI connector. For details, refer to the Installation Manual.

**[DisplayPort (Single1)]:** Use DisplayPort connector 1 to display the picture.

**[DisplayPort (Single2)]:** Use DisplayPort connector 2 to display the picture.

*For details on the supported video signals for display, see “Signal Formats” (page 21).*

**[DisplayPort (Dual)]:** Use two DisplayPort connectors to display pictures as large as 4K 100p/120p.

**Note**

If you are only inputting single-stream signals that are 50p/60p or lower, we recommend clicking [Detailed Input Settings] and clearing the [High Frame Rate Mode] checkbox in the [Detailed Input Settings] screen.

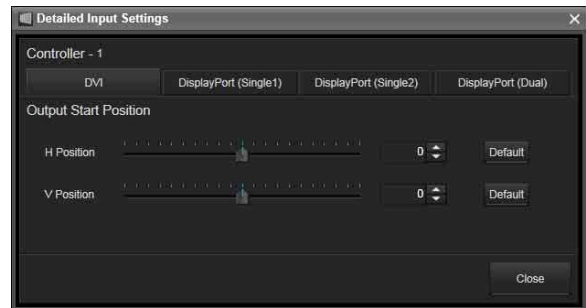
- 3 Click [OK] or [Apply] to apply the settings. The setting values will be registered to the display controller and saved to Display Control Software.

## Changing the Display Starting Positions of Pictures

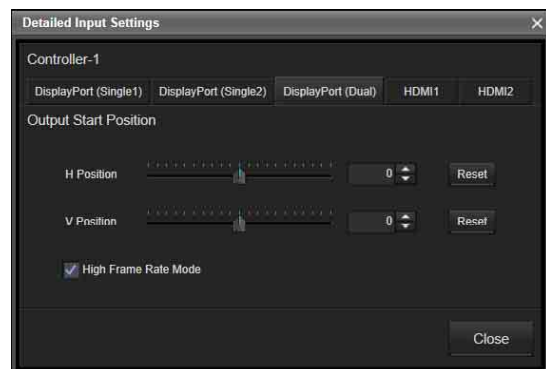
You can change the display positions for each picture. For example, you can move a low-resolution picture from the top left of the screen to the center.

- 1 Click [Detailed Input Settings] in the [Input Settings] screen. The [Detailed Input Settings] screen appears.

### Before version 1.20.0



### Version 1.20.0 or later



- 2 Click the tab ([DVI], [DisplayPort (Single1)], [DisplayPort (Single2)], [DisplayPort (Dual)], [HDMI1], or [HDMI2]) of the video signal for which you want to change the display starting position.

**Caution**

The [DVI] tab is only available for the ZRCT-100, and the [HDMI1] and [HDMI2] tabs are only available for the ZRCT-200.

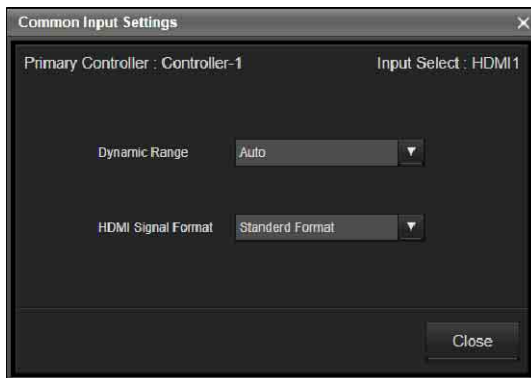
- 3 Use the sliders and [Reset] buttons for [H Position] and [V Position] to specify the horizontal and vertical positions. The settings are reflected in the picture immediately after they are configured.

*For details, refer to the Installation Manual.*

- Click [Close].  
The [Detailed Input Settings] screen closes.

## Configuring the Input Level and Signal Format for HDMI Inputs (ZRCT-200 Only)

- Select [HDMI1] or [HDMI2] for [Input Select] in the [Input Settings] screen, and click [OK] or [Apply].  
The video input changes.
- Click [Common Input Settings].  
The [Common Input Settings] screen appears. The settings configured on the primary controller will be applied to all the other display controllers, including the sub controllers. Sub controllers cannot be configured individually.



- Configure each setting.
 

**[Dynamic Range]:** Select the video input level for HDMI connectors 1 and 2.

  - [Auto]: Determine the video input level automatically.
  - [Limited]: Select this when the video input level is between 16 to 235.
  - [Full]: Select this when the video input level is between 0 to 255.

**[HDMI Signal Format]:** Select the video signal format.

  - [Enhanced Format]: Display pictures in a higher definition HDMI format.
  - [Standard Format]: Display pictures in standard HDMI format.

### Caution

Select [Standard Format] when an input device that does not support HDMI 2.0 is connected.

- When you are finished configuring settings, click [Close].

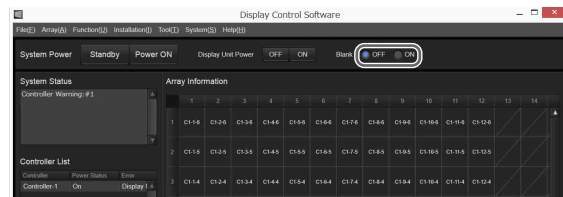
### Caution

The items in the [Common Input Settings] screen cannot be configured when an input channel other than HDMI is selected in [Input Select].

## Displaying a black picture on the screen

When switching the video signals, use this function when you do not want to display the image at the moment of switching. Even when displaying images from multiple display controllers, all images are switched at the same time.

Click [ON] in [Blank] on the main screen of Display Control Software. If [OFF] is selected, images from the video signal source will display.



### Note

Set [Blank] to [ON] in standby mode, click [Power ON] to display the black picture on the screen, and start the system. After that, set [Blank] to [OFF] to display the images.

# Adjusting the Picture Quality

Adjust the contrast, brightness, and other picture quality settings.

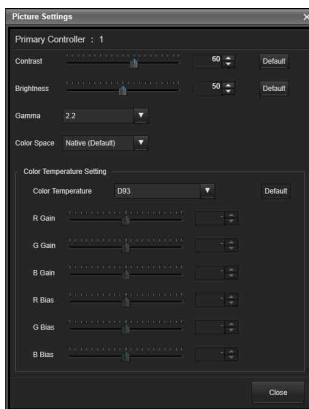
The settings configured on the primary controller will be applied to all the other display controllers, including the sub controllers. Sub controllers cannot be configured individually.

## Caution

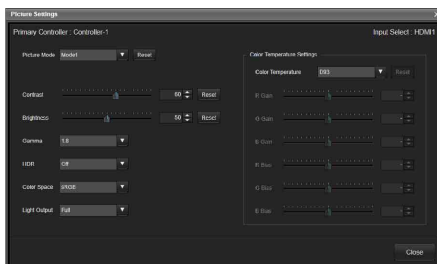
If the a primary controller is not configured via Display Control Software or the primary controller is not already turned on at the time the [Picture Settings] screen is displayed, picture quality adjustment cannot be performed. In addition, the picture quality settings will not be applied to the sub controllers if they are not turned on.

- 1 Select [Picture Settings] in the [Array] menu on the main screen of Display Control Software.
- 2 Configure each setting.  
The values currently configured on the primary controller are displayed on the [Picture Settings] screen.  
The settings are reflected in the picture immediately after they are configured.

### Before version 1.20.0



### Version 1.20.0 or later



**[Picture Mode] (version 1.20.0 or later only):**  
Select from [Mode1] to [Mode10] to display the

setting values for [Contrast] to [Color Temperature Settings]. If necessary, change the values for [Contrast] to [Color Temperature Settings]. The setting values are identical for each mode under factory default settings.

**[Contrast]:** Use the slider and buttons to adjust the contrast.

Setting range: 0 to 100

Default value: 60

**[Brightness]:** Use the slider and buttons to adjust the brightness.

Setting range: 0 to 100

Default value: 50

**[Gamma]:** Select the gamma correction value.

Default value: 2.2

## Caution

- This product is not a medical device. The device cannot be used for medical examinations, even when [DICOM SIM] is selected.
- The [Gamma] settings will be disabled if [HDR] is set to a setting other than [Off].

**[HDR] (version 1.20.0 or later only):** Select the playback mode for HDR (high dynamic range) content.

- [SMPTE ST 2084]
- [S-Log3]
- [ITU-R BT.2100 (HLG)] (version 1.22.0 or later): Display the HLG (Hybrid Log Gamma) image specified by recommendation ITU-R BT.2100. It takes priority over the value set in [Gamma].
- [S-Log3 (Live)] (version 1.22.0 or later): Display the HDR image with system gamma added to the S-Log 3 input signals. It takes priority over the value set in [Gamma].
- [Off]

**[Color Space]:** Select the color space.

- [Native]: Display the picture with the display unit's color space of the three primary color chromaticity points.
- [sRGB]: Display the picture using the sRGB color space standard.
- [AdobeRGB]: Display the picture using the Adobe RGB color space standard.
- [DCI] (before version 1.20.0 only): Display the picture using the DCI color space standard.
- [DCI\_P3] (version 1.20.0 or later only): Display the picture using the DCI color space standard.
- [BT.2020]: Display the picture using the BT.2020 color space standard.
- [Custom6] to [Custom10] (version 1.20.0 or later only): Display pictures using a custom color space.

### Caution

[AdobeRGB], [DCI], and [BT.2020] do not include the entirety of the color spaces defined by their respective standards.

### [Light Output] (version 1.20.0 or later only):

Select the output strength to use during low light-source output. For details, refer to the Installation Manual.


- [Full]: Output at 100% strength.
- [High]: Output at 75% strength.
- [Medium]: Output at 50% strength.
- [Low]: Output at 25% strength.

### Caution

The [Light Output] setting will be disabled if [HDR] is set to a setting other than [Off] (version 1.20.0 through 1.21.1).

**[Color Temperature Settings]:** Select the color temperature in [Color Temperature].

- If you selected [D93], [D65], [D50] or [DCI] (ZRCT-200 version 1.22.0 or later), proceed to step **4**.
- If you selected [D93 Custom (Offset)], [D65 Custom (Offset)], or [D50 Custom (Offset)], [DCI Custom (Offset)] (ZRCT-200 version 1.22.0 or later), proceed to step **3**.

- 3** Configure the offset values.  
These settings can only be configured when [Color Temperature Settings] is set to “Custom (Offset)” in step **2**.  
Use the slider and  buttons to adjust the contrast.  
Setting range: -128 to +127  
Default value: 0

- 4** When you are finished configuring settings, click [Close].

## Displaying 3D Video

### Note

In this document, the signals for the left and right eyes are referred to as the L and R signals respectively. For details, refer to the Installation Manual.

### Caution

3D video display is not supported for HDMI signals.

### 3D frame sequential mode:

This mode alternately inputs the two video signals (L signal and R signal) to the DisplayPort connector and outputs the 3D image from the display unit.

Generated 3D sync signals based on 3D sync signal inputs from the 3D SYNC IN connector are output from the 3D SYNC OUT connector according to the picture output's timing.

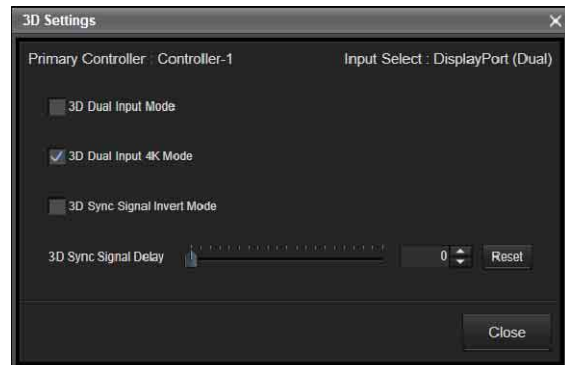
### 3D dual input mode:

This mode simultaneously inputs the two video signals (L signal and R signal) to the DisplayPort connector or the DVI connector, and the 3D image is output from the display unit.

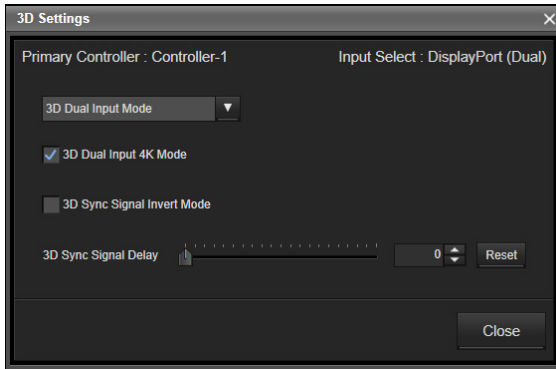
Internally generated 3D sync signals are output from the 3D SYNC OUT connector according to the picture output's timing.

Select [3D Settings] in the [Array] menu on the main screen of Display Control Software to display the [3D Settings] screen.

### Before version 1.22.0



## Version 1.22.0 or later



### [3D Dual Input Mode] (before version 1.22.0):


Select the checkbox for the 3D Dual Input Mode.

### [3D Dual Input Mode] (version 1.22.0 or later):

Select from the drop-down list.

**[3D Dual Input 4K Mode]:** Clear this checkbox for 3D video other than 4K. It works only if [3D Dual Input Mode] is set.

**[3D Sync Signal Invert Mode]:** Select this checkbox to invert the L and R signals.

**[3D Sync Signal Delay]:** Use the slider or  buttons to adjust the phase (when 3D video is not displayed properly). Moving the slider also changes the number value. Clicking [Default] for versions before 1.20.0 or [Reset] for versions 1.20.0 or later restores the default value.

### Note

Inversion and phase adjustments can be configured for both mixed L/R and separated L/R. The settings are reflected in the picture immediately after they are configured.

# Synchronizing with External Sync Signals

## Inputting External Sync Signals

Input the external sync signal to the REF IN (external reference signal input) connector on the primary controller via a BNC cable.

### Note

The following external sync signals are supported.

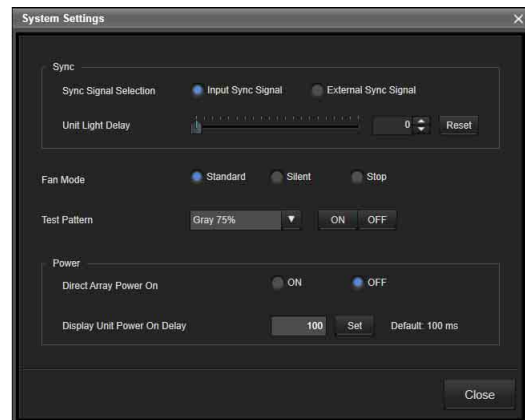
- HD tri-level sync (0.6 Vp-p/75Ω/negative sync)
- SD black burst/composite sync (0.286 Vp-p/75Ω/negative sync)

## Enabling External Synchronization


### Caution

If a primary controller is not configured with Display Control Software or the primary controller is not turned on, the external synchronization cannot be enabled.

- 1 Select [Function] in the main screen of Display Control Software, and then select [System Settings].
- 2 Select [External Sync Signal] in [Sync Signal Selection] under [Sync] in the [System Settings] screen.  
External synchronization is enabled immediately.



## Adjusting the light-up delay time for display units

Use the slider and  buttons for [Unit Light Delay] under [Sync] to specify the light-up delay time (0 to 4000).

# Using Network Features

Connection to the network allows you to operate the following features:

- Changing the password.
- Setting the ADCP protocol.
- Setting the support network monitoring protocol (SNMP).

## Notes

- When connecting the display controller with the network, consult with the network administrator. The network must be secured.
- When using the display controller connected with the network, access the control window via a Web browser. It is recommended to change the password regularly.
- When the setting on the Web browser is completed, close the Web browser to log out.
- The menu displays used for the explanation below may be different depending on the model you are using.
- Supported Web browsers are Internet Explorer and Safari.
- The menu displays only English.
- If the browser of your computer is set to [Use a proxy server] when you have access to the display controller from your computer, click the check mark to set accessing without using a proxy server.
- IPv6 is not supported.

## Displaying the Control Window of the Display controller with a Web Browser

- 1 Connect the LAN cable.
- 2 Start a web browser on the computer, enter the following in the address field, then press the Enter key on your computer.  
http://xxx.xxx.xxx.xxx  
(xxx.xxx.xxx.xxx: IP address for the display controller)

When you access the Web page for the first time, input “admin” as the user name and “cledis” as the password in the authentication dialog.

When you log in for the first time, the window that prompts you to change the password is displayed. Follow the instructions on the screen to change the password. The name of the administrator is preset to “admin.”

Entry area for [Administrator]

The password can be changed in the Password page. When you change the password, input a new password. The password of the administrator and user should be 8 to 16 characters that includes both alphabet and numeric characters. Alphabet is case-sensitive. The default password “cledis” cannot be set as a new password.

## Note

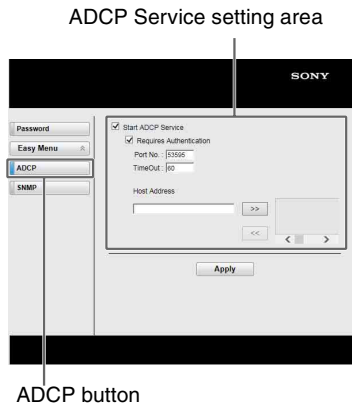
If you forget your password, consult with qualified Sony personnel. At that time, we may contact you with a special password to reset your password. (However, since the password is for reconfiguration, the available range is limited.)



## Setting the Control Protocol of the display controller

Change the settings for the control protocol on the Advanced Menu. Entered values will not be applied unless you click on [Apply].

Set ADCP.



**Start ADCP Service:** Set ADCP to enabled or disabled. Items for ADCP are enabled only when this function is enabled.

**-Requires Authentication:** Set the authentication for ADCP to enabled or disabled. The password is the same as that of the Web page administrator.

**-Port No.:** Input the server port of ADCP. The factory default setting is “53595.”

**-Timeout:** Input the time (seconds) until ADCP communication is terminated in case it is disconnected. The factory default setting is “60.”

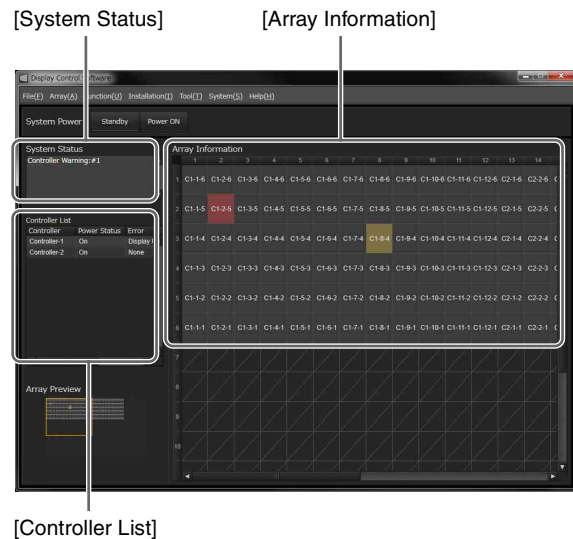
**-Host Address:** Input the IP address that the ADCP server is allowed to receive. If no IP address is input, receiving commands will be allowed from any IP address. From the moment the IP address is input, access will be allowed only from that input IP address. For security reasons, it is recommended to input an IP address to restrict access.

## Troubleshooting

Be sure to conduct a check before requesting assistance. If the problem persists, contact your local Sony representative.

### Checking the status of the system and devices

You can check the status of the system, display controllers, display units, and other devices in the main screen.



#### [System Status]

Displays the status of the system and display controllers.

- [Operation Normal]: Operation is normal.
- [Controller Error]: Device operation has stopped due to an error. The display controllers and display units have entered standby mode, and picture display has stopped. For details on the error, check the [Error] column under [Controller List].
- [Controller Warning]: Device operation continues but a warning (fan error, picture sync error, etc.) has occurred. Check the details of the warning, and resolve the problem as soon as possible. For details on the warning, check the [Error] column under [Controller List].

#### [Controller List]

Displays the status of each display controller.

**[Power Status]:** “-” indicates that communication with the display controller is not possible.

**[Error]:** “None” indicates that there are no errors or warning.






If an error or warning occurs, see “Error Codes” (page 19), and resolve the problem as soon as possible.

### Note

You can view information on a display controller by double-clicking its controller number or by right-clicking it and selecting [Controller Info.].

### [Array Information]

Displays the status of each display unit.

-  (gray): The display unit is turned on.
-  (black): The display unit is turned off.
-  (maroon): An error has occurred on the display unit.
-  (ocher): A warning has occurred on the display unit.
-  (black): A display unit does not exist.

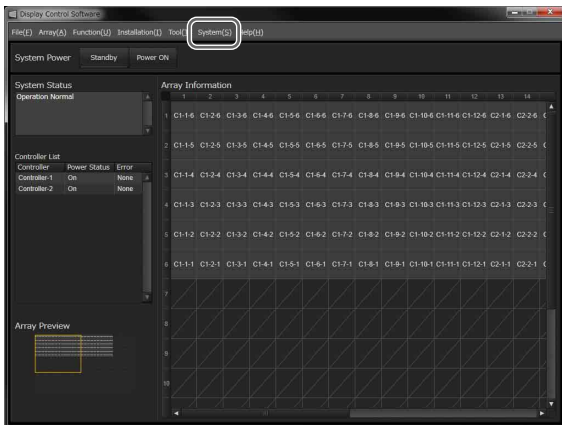
### Note

You can view information on a display unit by double-clicking within its frame or by right-clicking it and selecting [Display Unit Info.].

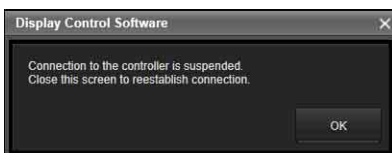
### If the controller PC is slow

By suspending the connection to the display controllers, you can avoid slow communication responses that may occur when using other applications, for example.

Select [Disconnect] in the [System] menu on the main screen of Display Control Software to suspend communication with the display controllers.



The following dialog box is displayed while communication is suspended.



### To reestablish connection

Close the dialog box.

### Entering the forced standby mode

If the controller PC hangs, for example, you can force display controllers and display units into standby mode.

- 1** Press and hold the power switch on the display controller for at least 5 seconds.  
The forced standby mode is entered, and the POWER indicator lights red.
- 2** Press and hold the power switch again for about 2 seconds.  
After the POWER indicator blinks red/orange, the normal standby mode is entered.  
The display units will also enter the normal standby mode.

# Error Codes

When a system error or warning occurs, verify the error code as follows.

## For display units:

Under [Array Information] in the main screen, double-click within the frame of the display unit or right-click it and select [Display Unit Info.] to display the [Display Unit Information] screen and the error code.

## For display controllers:

Under [Controller List] in the main screen, double-click the display controller number or right-click it and select [Controller Info.] to display the [Controller Information] screen and the error code.

## Display Units

### Errors

Error code	Category	Definition	Solution
102	Power	Main Power (VDD1 / VDD2)	Contact your local Sony representative.
104		AC Power Supply	
111	Temperature	Temperature (UC)	Check the device environment and remove any obstructions from the fan and intake vent. If the problem persists, contact your local Sony representative.
110		Temperature (Ambient)	
113		Temperature (CELL_1 to CELL_12)	
121	Board	UC Board (Power-up Sequence / Shut-Down Sequence / Power Supply / Flash Data Error / IC Setting / Other)	Contact your local Sony representative.
122		UP Board (CELL_1 to CELL_12)	
130	Connection/ communication	Connection_Error / RS485 Communication / Video Input Signal / Connection_Error / RS485 Communication / Video Input Signal	Check that all cables are properly connected. If the problem persists, contact your local Sony representative.

### Warnings

Warning code	Category	Definition	Solution
310	Temperature/fan	Temperature (UC / Ambient)	Check the device environment and remove any obstructions from the fan and intake vent. If the problem persists, contact your local Sony representative.
313		Temperature (CELL_1 to CELL_12)	
315		Fan (Right): stop / speed-down	
316		Fan (Right): performance degradation	Check the fan status and running time.
		Fan (Left): stop / speed-down	Check the device environment and remove any obstructions from the fan and intake vent. If the problem persists, contact your local Sony representative.
	Fan (Left): performance degradation	Check the fan status and running time.	
321	Board	UC Board (Reserved)	Turn the power off and turn it on again. If the problem persists, contact your local Sony representative.
322		UP Board (Reserved)	
330	Connection/ communication	UNIT Communication (RS485)	Check the fan status and running time.
		RS485 Wrong Command / Video Input	Check that all cables are properly connected. If the problem persists, contact your local Sony representative.
340	System	Update (UNIT FPGA)	Perform update again. If the problem persists, contact your local Sony representative.
350			

# Display Controllers

## Errors

Error code	Category	Description	Solution
001	Power	CPU power supply error	Contact your local Sony representative.
002		DIF power supply error <sup>1)</sup> / VIF power supply error <sup>2)</sup>	
003		PIF power supply error	
012	Temperature	DIF temperature error <sup>1)</sup> / VIF temperature error <sup>2)</sup>	Check the device environment and remove any obstructions from the fan and intake vent. If the problem persists, contact your local Sony representative.
013		PIF temperature error	
017		UNIT temperature error	
023	Board determination	PIF determination error	Contact your local Sony representative.
050	System	System version error	

## Warnings

Error code	Category	Description	Solution
212	DIF <sup>1)</sup> / VIF <sup>2)</sup>	Temperature warning	Check the device environment and remove any obstructions from the fan and intake vent. If the problem persists, contact your local Sony representative.
213	PIF		
214	PS		
215	Fan (Front)	Rotation stop warning / speed warning	Check the device environment and remove any foreign objects that may be obstructing the fan. If the problem persists, contact your local Sony representative.
216	Fan (Rear)		
230	System	Controller configuration data mismatch warning	Check the installation, wiring, and Display Control Software settings, and if a problem does not exist, turn the power off and turn it on again. If the problem persists, contact your local Sony representative.
233	PIF	DIF signal connection warning <sup>1)</sup> / VIF signal connection warning <sup>2)</sup> / Link connection warning / Sync connection warning	
240	System	Update warning (CPU / DIF <sup>1)</sup> / VIF <sup>2)</sup> / PIF)	Perform update again. If the problem persists, contact your local Sony representative.

1) ZRCT-100 only

2) ZRCT-200 only

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# Cleaning and Storage

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## Display Units

### Caution

Do not wet the surface of the display units.

### Daily cleaning

- Use a soft anti-static cloth that does not produce lint when cleaning the surface of the display units. (Recommended cloth: savina MX wiping cloth made by KB SEIREN, LTD.)
- Use ethyl alcohol (near 100%) to clean stubborn stains on the surface. Do not use any other solvents.
- Use commercially available anti-static dust blowers to clean joints.

### Storage (for transportation)

- Make sure the display units are completely dry before packing them.
- Store the display units in dry, well-ventilated environments.

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## Display Controllers

### Daily cleaning

- Use a cloth that has been dampened with a neutral detergent and thoroughly wrung out to wipe the device clean. Never use solvents, such as benzene and thinners.

### Storage

- Do not store in environments where condensation may occur inside the device.

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# Signal Formats

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The system supports the following video signals.

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## 2D Inputs

### DisplayPort (single input)

Resolution	Input frame rate <sup>1)</sup>	Input bit length	Input color sampling
3840 × 2160 <sup>2)</sup>	60p/50p/30p/25p/24p	8-/10-bit	RGB 4:4:4
2560 × 1440 <sup>12)</sup>	60p	8-/10-bit	RGB 4:4:4
1920 × 2160	120p <sup>3)</sup> /100p <sup>3)</sup> /60p/30p/25p <sup>4)</sup> /24p <sup>4)</sup>	8-/10-bit	RGB 4:4:4
1920 × 1080	120p/100p/60p/50p/30p <sup>5)</sup>	8-/10-bit	RGB 4:4:4

### DisplayPort (dual input)

Resolution	Input frame rate <sup>1)</sup>	Input bit length	Input color sampling
3840 × 2160 <sup>6)</sup>	120p/100p	8-/10-bit	RGB 4:4:4

### DVI (1 input) (ZRCT-100 only)

Resolution	Input frame rate <sup>1)</sup>	Input bit length	Input color sampling
1920 × 1080	60p/50p/30p/25p/24p	8-bit	RGB 4:4:4

### DVI (4 input) (ZRCT-100 only)

Resolution	Input frame rate <sup>1)</sup>	Input bit length	Input color sampling
3840 × 2160 <sup>7)</sup>	60p/50p/30p/25p/24p	8-bit	RGB 4:4:4

## HDMI port (ZRCT-200 only) <sup>8)</sup>

Resolution	Input frame rate <sup>9)</sup>	Input bit length	Input color sampling
3840 × 2160	60p/50p	8-bit	RGB 4:4:4 <sup>10)</sup> / YCbCr 4:4:4 <sup>10)</sup> / YCbCr 4:2:0
3840 × 2160	60p/50p	12-bit	YCbCr 4:2:2 <sup>10)</sup>
3840 × 2160	30p/25p/24p	10-/12-bit	RGB 4:4:4 <sup>10)</sup> <sup>11)</sup> / YCbCr 4:4:4 <sup>10)</sup> <sup>11)</sup>
3840 × 2160	30p/25p/24p	8-bit	RGB 4:4:4/ YCbCr 4:4:4
3840 × 2160	30p/25p/24p	12-bit	YCbCr 4:2:2
1920 × 1080	60p/50p	8-/10-/12-bit	RGB 4:4:4/ YCbCr 4:4:4
1920 × 1080	60p/50p	12-bit	YCbCr 4:2:2
1920 × 1080	30p/25p/24p	8-/10-/12-bit	RGB 4:4:4/ YCbCr 4:4:4
1920 × 1080	30p/25p/24p	12-bit	YCbCr 4:2:2
1280 × 720	60p/50p	8-/10-/12-bit	RGB 4:4:4/ YCbCr 4:4:4
1280 × 720	60p/50p	12-bit	YCbCr 4:2:2
1024 × 768	60p	8-/10-/12-bit	RGB 4:4:4/ YCbCr 4:4:4
1024 × 768	60p	12-bit	YCbCr 4:2:2
800 × 600	60p	8-/10-/12-bit	RGB 4:4:4/ YCbCr 4:4:4
800 × 600	60p	12-bit	YCbCr 4:2:2
720 × 480	60p	8-/10-/12-bit	RGB 4:4:4/ YCbCr 4:4:4
720 × 480	60p	12-bit	YCbCr 4:2:2
720 × 576	50p	8-/10-/12-bit	RGB 4:4:4/ YCbCr 4:4:4
720 × 576	50p	12-bit	YCbCr 4:2:2
640 × 480	60p	8-/10-/12-bit	RGB 4:4:4/ YCbCr 4:4:4
640 × 480	60p	12-bit	YCbCr 4:2:2

- 1) 1,000/1,001 frame rate is also supported for 120p/60p/30p/24p.
- 2) Input 3840 × 2160 signals (multi-stream only) to DisplayPort connector 1 or 2.
- 3) Input 1920 × 2160 signals (multi-stream only) to DisplayPort connector 1 or 2.
- 4) Input 1920 × 2160 signals (single-stream only) to DisplayPort connector 1 or 2.
- 5) ZRCT-100 only
- 6) Input 1920 × 2160 signals (multi-stream only) to DisplayPort connectors 1 and 2.
- 7) Input 1920 × 1080 signals to DVI connectors 1 to 4.
- 8) Converted to RGB 4:4:4, 8-/10-bit for display (8-bit is displayed for 8-bit inputs only).
- 9) 1,000/1,001 frame rate is also supported for 60p/30p/24p.
- 10) Use a Premium High Speed HDMI cable when using this input signal.
- 11) Converted to YCbCr 4:2:2, 10-/12-bit first, and then converted to RGB 4:4:4, 10-bit for display.
- 12) ZRCT-200 version 1.22.0 or later

## 3D Inputs

### Frame sequential mode

#### DisplayPort (single input)

Resolution	Input frame rate <sup>1)</sup>	Input bit length	Input color sampling
3840 × 2160	60p <sup>2)</sup> <sup>5)</sup>	8-/10-bit	RGB 4:4:4
1920 × 2160	120p <sup>2)</sup> / 100p <sup>2)</sup> / 60p <sup>5)</sup>	8-/10-bit	RGB 4:4:4
1920 × 1080	120p/100p/60p <sup>5)</sup>	8-/10-bit	RGB 4:4:4

#### DisplayPort (dual input)

Resolution	Input frame rate <sup>1)</sup>	Input bit length	Input color sampling
3840 × 2160 <sup>3)</sup>	120p/100p	8-/10-bit	RGB 4:4:4

### 3D dual input mode

#### DisplayPort (dual input)

Resolution	Input frame rate <sup>1)</sup>	Input bit length	Input color sampling
3840 × 2160 <sup>4)</sup>	60p/50p	8-/10-bit	RGB 4:4:4
1920 × 2160	60p/50p	8-/10-bit	RGB 4:4:4
1920 × 1080	60p/50p	8-/10-bit	RGB 4:4:4

### DVI (ZRCT-100 only)

Input the following input signals to DVI connectors 1 and 3.

Resolution	Input frame rate <sup>1)</sup>	Input bit length	Input color sampling
1920 × 1080	60p/50p	8-bit	RGB 4:4:4

- 1) 1,000/1,001 frame rate is also supported for 120p/60p/30p/24p.
- 2) Input 1920 × 2160 signals (multi-stream only) to DisplayPort connector 1 or 2.
- 3) Input 1920 × 2160 signals (multi-stream only) to DisplayPort connectors 1 and 2.
- 4) Input 3840 × 2160 signals (multi-stream only) to DisplayPort connectors 1 and 2.
- 5) ZRCT-200 version 1.22.0 or later

## Supported Signal Formats for a Single Controller

Resolution	Frequency	Color sampling	DisplayPort input				DVI input (ZRCT-100 only)	
			Single input		Dual input		Single input	Quad input
			DP1 or DP2		DP1 and DP2		One of DVI 1 to 4	DVI 1 to 4
			SST	MST	SST	MST		
3840 × 2160	120/119.88	RGB 4:4:4	–	–	–	8-/10-bit (Square Division)	–	–
	100	RGB 4:4:4	–	–	–	8-/10-bit (Square Division)	–	–
	60/59.94	RGB 4:4:4	–	8-/10-bit (V split)	8-/10-bit (V split)	8-/10-bit (Square Division)	–	8-bit (Square Division)
	50	RGB 4:4:4	–	8-/10-bit (V split)	8-/10-bit (V split)	8-/10-bit (Square Division)	–	8-bit (Square Division)
	30	–	8-/10-bit <sup>2)</sup>	8-/10-bit (V split)	8-/10-bit (V split)	8-/10-bit (Square Division)	–	8-bit (Square Division)
	29.97	–	–	8-/10-bit (V split)	8-/10-bit (V split)	8-/10-bit (Square Division)	–	8-bit (Square Division)
	25	RGB 4:4:4	–	8-/10-bit (V split)	8-/10-bit (V split)	–	–	8-bit (Square Division)
	24/23.98	RGB 4:4:4	–	8-/10-bit (V split)	8-/10-bit (V split)	–	–	8-bit (Square Division)
2560 × 1440 <sup>2)</sup>	60	RGB 4:4:4	8-/10-bit	–	–	–	–	–
1920 × 1080	120/119.88	RGB 4:4:4	8-/10-bit	–	–	–	–	–
	100	RGB 4:4:4	8-/10-bit	–	–	–	–	–
	60/59.94	RGB 4:4:4	8-/10-bit	–	–	–	8-bit	–
	50	RGB 4:4:4	8-/10-bit	–	–	–	8-bit	–
	30/29.97	RGB 4:4:4	8-/10-bit <sup>1)</sup>	–	–	–	8-bit	–
	25	RGB 4:4:4	–	–	–	–	8-bit	–
	24/23.98	RGB 4:4:4	–	–	–	–	8-bit	–

1) ZRCT-100 only

2) ZRCT-200 version 1.22.0 or later

Resolution	Frequency	Color sampling	HDMI input (ZRCT-200 only)	
			Single input	
			HDMI1 or HDMI2	
3840 × 2160	60/59.94	RGB 4:4:4/YCbCr 4:4:4/YCbCr 4:2:0	8-bit	
		YCbCr 4:2:2	12-bit	
	50	RGB 4:4:4/YCbCr 4:4:4/YCbCr 4:2:0	8-bit	
		YCbCr 4:2:2	12-bit	
	30/29.97	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
	25	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
	24/23.98	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
1920 × 1080	60/59.94	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
	50	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
	30/29.97	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
	25	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
	24/23.98	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
1280 × 720	60/59.94	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
	50	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
1024 × 768	60/59.94	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
800 × 600	60/59.94	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
720 × 480	60/59.94	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
720 × 576	50	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	
640 × 480	60/59.94	RGB 4:4:4/YCbCr 4:4:4	8-/10-/12-bit	
		YCbCr 4:2:2	12-bit	



